

Ham (J. R.)

A CONTRIBUTION
TO THE
Study of Fractures and Dislocations.

READ BEFORE THE

N. H. MEDICAL SOCIETY,

JUNE 21, 1881,

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JOHN RANDOLPH HAM, M. D.,

OF DOVER.

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A CONTRIBUTION TO THE STUDY OF FRACTURES AND DISLOCATIONS.

FURNISHED FOR THE REPORT ON SURGERY, BY JOHN R. HAM, M. D.,
DOVER.

During the fifteen years of my practice in Dover, N. H., I have recorded one hundred and eighteen cases of fracture and twenty-nine cases of dislocation which I have treated. They include fractures of the radius, ulna, humerus, scapula, clavicle, astragalus, tibia, fibula, patella, femur, and maxilla ; and dislocations of carpus, radius, ulna, humerus, clavicle, inferior maxilla, and vertebra. Other fractures,—of the ribs, cranium, phalanges, metacarpal and metatarsal bones,—have been treated, but are not included in this list.

I find recorded one hundred and eighteen cases of fracture, occurring in one hundred and ten individuals. There have been one hundred and two cases of single fracture, and eight cases in which there were two different fractures. Of course this does not apply to the case where both bones of the leg or forearm are broken. Such cases are counted as a single fracture.

According to frequency, these fractures would be arranged as follows : forearm, thirty-six ; leg, twenty-seven ; clavicle, seventeen ; femur, fourteen ; humerus, thirteen ; patella, five ; superior maxilla, two ; inferior maxilla, two ; scapula, one ; astragalus, one. From this summary, we see that forty-nine fractures were of the upper extremity, and forty-seven of the lower extremity. Of the upper extremity, three fourths were of the forearm ; and in the

lower extremity, the fractures of the thigh were to those of the leg, as one to two. There were thirty-four fractures on the right side of the body, forty-two on the left, and forty-two not stated.

Before passing to the different groups of fracture, I would express my regret at the incompleteness of the record I have kept, and my failure, in a large number of cases, to give precisely the most important information: as, for example, the side of the body which sustained injury, the length of the limb before reduction of the fracture (also after treatment), and the average length of treatment.

MORTALITY.

Of the one hundred and ten individuals who have been treated for fracture, none have died. When we consider that eight cases of fracture of the femur occurred in persons aged sixty-two, sixty-four, sixty-six, sixty-six, seventy-two, seventy-four, seventy-six, and eighty-eight years respectively, and that ten cases of fracture of the leg were compound,—one necessitating amputation in the lower third of the thigh,—and that the average of mortality of the compound fracture of the leg is about one in three, we think the result remarkable. There was one death from dislocation of the vertebra.

FRACTURES OF THE FOREARM.

There were thirty-six cases, of which fourteen were males and twenty-two females. Of these cases, ten were on the right side, ten on the left, and sixteen not stated; twenty-three were Americans and thirteen were Irish.

Radius and Ulna. There were six cases, of which three were male and three female. As to location: one was in the upper third, one radius in middle and ulna in upper third, three in the middle third, and one in the lower third. Five were on the right side, and one on the left. One was compound. All were treated with antero-posterior splints.

Radius. There were thirty cases, of which eleven were in males, and nineteen in females; five on the right side, nine on the left, and sixteen not stated. Three of the fractures were in the middle third, and twenty-seven in the lower third. Twenty-

four were of the variety known as Colles' fracture, and in three individuals the Colles' fracture was double. The fractures of the shaft were treated by antero-posterior splints. Colles' fractures were treated, for the most part, by the Carr splint.

HUMERUS.

There were thirteen cases, occurring in twelve individuals. Two of these were compound. All were in males: four right, three left, and six not stated. As to location: three were in the upper third, one at the junction of upper and middle third, six in the middle third, and three in the lower third.

The anatomical neck was broken once, the surgical neck once, and the shaft eleven times. One patient sustained fractures of the surgical neck and of the shaft at the same time. Another sustained fractures of the anatomical neck and of the superior maxilla at the same time.

Six patients were Americans, four Irish, and two French.

Causes: one dynamite explosion; one fall from fence; one fall from tree; one fall in wrestling in bar-room; one of anatomical neck by railroad accident; one by a falling tree; four by being caught by revolving shaft; and three not stated.

In the case of fracture of the anatomical neck, there was a rupture of the capsular ligament, and the rounded articular fragment of the head of the humerus was driven through the rent. The fracture and dislocation of the fragment were not discovered until the swelling subsided, when it was found impossible to reduce the dislocation. The fragment became attached to the shaft of the humerus, on the axillary side, and is now felt as a rounded mass, that rotates with the humerus. The shoulder is somewhat flattened, and the arm is one inch shorter than its fellow. The function of the limb is good. Internal angular splints were used in treating the fractures in the lower third of the humerus.

SCAPULA.

One case of fracture of the neck of the scapula, in a man who was thrown from a carriage and fell on the palm of the hand, with the arm extended.

CLAVICLE.

There were seventeen cases, of which eight were males and nine females; eleven were Americans and six were Irish; six were right, four left, and seven not stated. Three were treated by axillary pad and bandage, and the remainder by adhesive strips (Sayre's method). The average duration of treatment in adult cases, was thirty days.

FEMUR.

There were fourteen cases in all, of which seven were of the neck of the bone; nine were Americans and five were Irish. Of the fractures of the shaft, there were five males and two females: two were of the right side, and five of the left; one was in the upper third of the shaft, four in the middle third, and two in the lower third.

Of the fractures of the neck of this bone, there were three males and four females: one was on the right side, and six on the left; three were impacted, and four were loose fractures.

Causes.—Fracture of shaft: one by fall from load of hay, one by caving in of bank of earth, one by being carried over revolving shaft, one run over by carriage, and three were simple falls. Of the neck of the bone: one was thrown from carriage, one fell from roof of house, and five from simple falls.

The treatment of the fractures of the shaft, and also of the loose fractures of the neck of the bone, has been by raising the foot of the bed; extension, by adhesive strips reaching above the knee, and weight of twelve to sixteen pounds to foot; sand-bags on sides of limb; and in case of fracture of the shaft, short splints at point of fracture.

In one case of fracture of the shaft of the femur, in a child of two years, the patient was placed on his back; the lower limbs were flexed at right angles to the body; and extension, sufficient to raise the buttocks slightly from the bed, was applied in that position to both limbs. In impacted fractures of the neck, the extension should only suffice to keep the limb at rest.

Results. There was eversion, but no shortening, on recovery of the three impacted fractures of the neck of the femur; in the loose fract-

ures of the neck, there was half an inch shortening in one case, three fourths of an inch in each of two cases, and one inch in one case.

In the fractures of the shaft, there was no shortening on recovery in three cases, one half an inch in each of three cases, and three fourths of an inch in one case.

FRACTURES OF THE LEG.

There were twenty-seven cases. Causes: two from kicks in bar-room fights; one from fall from beam in barn; three from falling down stairs; six from being thrown from carriage; one by fall of dry goods box; one by fall of bale of cotton; one by falling of tree; three by falling in wrestling; one in coasting down hill; one by machinery accident; one railroad accident; one by fall of derrick; one (an adult) fell fifteen inches from a hammock, and fractured both bones; one fell forty feet down a perpendicular stone wall, and struck upon a ledge; one fell on sidewalk; one in jumping; and one not stated.

Tibia and Fibula. Of the nineteen cases of fracture of both bones, ten were Americans, seven were Irish, one German, and one Italian; sixteen were males, and three were females; nine were simple, and ten were compound; seven were of the right leg; six of the left; and six not stated. One was located in the upper third of the leg, nine were in the middle third, one tibia in middle and fibula in upper third, and eight in the lower third. One case of compound, comminuted fracture in the upper third, necessitated amputation in the lower third of thigh. Plaster of Paris splints have been used in most cases. In a large number of cases, a straight-back splint, with an immovable foot piece at right angles with it, and two side splints, has been used. With the last splint, it has been my custom to protect the tendon of the heel, by means of a rubber air-cushion placed under it.

Tibia. There were four cases of fracture of this bone, of which all were males; two were Americans, and two Irish; one was of the left side, and three not stated; three were located at the middle third, and one in the upper third. Plaster of Paris splints were used in each case.

Fibula. There were four cases of fracture of this bone: one female, and three males; three Americans, and one Irish; one of right side, three left; all in the lower third.

PATELLA.

There were five cases of fractured patella, and all occurred from muscular contraction. The fragments, at the time of injury, were separated from half an inch to one and one half inches. The fractures were all transverse, and were all situated at the junction of the lower and middle thirds of the bone; all were in males, and the five cases occurred in four individuals; two were Americans, and three were Irish; two of the cases occurred in two brothers; two were on the right side, one left, and two not stated.

One of the fractures occurred from falling in the street, two from springing from a wagon, one from running in a game of ball, and one was a re-fracture from falling down stairs after an interval of seven weeks. The treatment consisted of straight posterior splint, adhesive strips surrounding joint, figure of eight bandage, and elevation of the foot.

In three cases the bond of union was thought to be osseous; in the case of re-fracture, the union was ligamentous, and the fragments were separated one third of an inch, after recovery.

SUPERIOR MAXILLA.

Two cases; both males; both Americans; one caused by kick of horse, and one by railroad accident.

INFERIOR MAXILLA.

Two cases; both males; both Americans; and both compound. One occurred from falling fifty feet down a ledge, and one from a blow with slung shot. Treated by wiring the teeth, and paste-board splints.

ASTRAGALUS.

One case; in a male; Irish; left side; from falling from a stone wall, forty feet high, and striking on his feet on a ledge of rock. There was a compound fracture of the tibia and fibula, on the opposite side, in this case.

DISLOCATIONS.

There have been twenty-nine dislocations, as follows : humerus, twenty-two ; radius and ulna, three ; carpus, one ; clavicle, one ; vertebra, one ; and inferior maxilla, one.

Humerus. Fourteen patients sustained dislocations of the humerus once ; one patient twice ; and one patient six times.

Of the sixteen patients, there were twelve males and four females ; Americans, eleven ; Irish, five. The bone was luxated downward, or forward, in each case,—the proportion of either form not stated.

In the case of the patient who suffered six dislocations, the accident occurred each time at intervals of about six weeks, from muscular contraction while in an epileptic convulsion. He was a very muscular person, and in no instance was reduction possible until he was etherized.

Radius and Ulna. There were three cases of dislocation of radius and ulna ; all were in males ; all Americans ; and in each case the luxation was backward. The accident occurred, in each case, by falling from a height and striking, with forearm extended, upon the open palm.

Vertebra. One case of dislocation of the vertebra occurred in an American, who, while intoxicated, was overturned in his wagon. The seventh cervical vertebra was luxated forward upon the first dorsal. Paralysis of the lower extremities and bladder followed immediately. Reduction was not effected, the patient being unwilling to take an anesthetic ; nor would he allow extension of spinal column, and manipulation, sufficient to reduce it. Death supervened in thirty-six hours, and an autopsy disclosed dislocation without fracture.

Inferior Maxilla. One case ; American ; male.

Patient said he had taken ether four days previously for the extraction of teeth, and that he had not been able to close his jaws since. He had vomited after the etherization, but the operator (who accompanied him) did not notice any deformity while patient was in the dental office.

Clavicle and Carpus. One of each. That of the clavicle was at the acromial extremity.

